**ECE 1111: Engineering Computation I**

**Homework No. 14: Python Functional Programming**

**Deposit your work in:**

**/data/courses/ece\_1111/current/homework/hw\_15/<lastname\_firstname>**

**Goal:** Introduce you to high performance programming in Python.

**Description:** As an introduction to this assignment, please review the following tutorial:

*http://stackoverflow.com/questions/12375761/good-mapreduce-examples*

Try implementing solutions to the problems below using the map and reduce functions in Python.

Next, following the approach described here:

*http://programminghistorian.org/lessons/counting-frequencies*

count the number of times each word occurs in this interesting book:

*https://isip.piconepress.com/courses/temple/ece\_1111/resources/data/text/data\_v00.txt*

Your program should take a directory path as an argument and process all the text files (\*.txt) found in those directories:

*myprog.py data\_v00.txt data\_v01.txt …*

Analyze your code and discuss how run-time varies with the number of files processed and the total size of those files (N) (e.g., the total number of lines in all the files combined).

Does the run-time vary linearly with N? Quadratically with N? Exponentially with N?